

Applicant: Ching-Chung Huang
Application No.: 10/001,318

IN THE CLAIMS

1. (Currently Amended) A method of manufacturing a multi-purpose paper, comprising steps of:

(a) providing a papermaking material and obtaining a clean paper pulp by treating said papermaking material;

(b) adding at least one functional additive into said clean paper pulp; ~~to form said multi-purpose paper; and~~

(c) processing plural steps including classifying, pulp-dispersing, coarse pulp-clarifying, fiber-separation, coarse screening, fine pulp-clarifying, heat-dispersion, fine screening, bleaching, pulp-washing and pulp-refining steps to form said multi-purpose paper; and

(d) processing said multi-purpose paper to form thereon an uneven surface structure.

2. (Currently Amended) The method according to claim 1, wherein said papermaking material is one selected from a group consisting of waste cardboard case fibers, ~~biodegradable~~ plant fibers and polymer fibers.

3. (Canceled)

4. (Original) The method according to claim 1, wherein said at least one functional additive is one selected from a group consisting of Camellia seed cake's

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powder, calcium carbonate, dry strength agent, wet strength agent, weed control agent, pest control agent and bacterial control agent.

5. (Original) The method according to claim 4, wherein said Camellia seed cake's powder is added into said clean paper pulp at 1% by weight for preventing golden apple snails (*Pomacea Canaliculata Lamarck*) and increasing dispersive level of fibers during manufacturing.

6. (Original) The method according to claim 4, wherein said calcium carbonate is added into said clean paper pulp at a dosage based on classification of said papermaking material, sieving ratio of fibers, desired water-absorbing ability and air permeability of said paper for increasing the physical strength of said paper and promoting the proliferation of microorganisms.

7. (Currently Amended) The method according to claim 4, wherein said weed control agent is one of inorganic or and organic packing materials, wherein said inorganic packing material is one selected from a group consisting of black carbon, silicon dioxide and titanium dioxide.

8. (Original) The method according to claim 4, wherein said dry strength agent is one of acidic and neutral agents of one of anionic and cationic ones selected from a group consisting of melamine formaldehyde resin, polymeric amine-epichlorohydrin resin, phenolic resin, glyoxalated polyacrylamide resin, polyacrylamide resin, raw starch, and modified starch.

9. (Original) The method according to claim 4, wherein said wet strength agent is one of acidic and neutral agents of one of anionic and cationic ones selected from a group consisting of melamine formaldehyde resin, polymeric amine-epichlorohydrin resin, phenolic resin, and glyoxalated polyacrylamide resin.

10. (Original) The method according to claim 1, wherein said uneven surface structure is an embossed structure.

11. (Original) The method according to claim 1, wherein said uneven surface structure is a corrugated structure.

12. (Original) The method according to claim 1, wherein said multi-purpose paper has a pH value ranging between about 6 and about 7.

13. (Currently Amended) The method according to claim 1, wherein said multi-purpose paper includes a corrugated paper layer having basic weight ranged from 90 g/m² to 150 up g/m² and a surface paper layer having basic weight ranged from 90 g/m² to 300 up g/m² in order to have high wet strength, water-preventing ability and water-permeating ability.

14. (Original) The method according to claim 1, wherein said multi-purpose paper is a paper substrate with a thickness ranged from 0.2 mm to 0.3 mm.

15. (Original) The method according to claim 1, wherein said paper substrate has a water-absorbing ability larger than Cobb, 1 Min, 20 gsm and a wet-

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rupture strength in longitudinal/transverse direction lower than 1.0 kg/m² after 2 hours immersion.

16. (Original) The method according to claim 1, wherein said paper substrate has a wet-breaking strength in longitudinal/transverse direction lower than 1.0 kg/m² after 2 hours immersion.

17. (Original) The method according to claim 1, wherein said multi-purpose paper has an air permeability larger than about 50 sec/100cc.

18. (Original) The method according to claim 1, wherein said multi-purpose paper is rolled up, and cut into a specific shape in use.

19. (Currently Amended) The method according to claim 1, wherein said paper is directly obtained from the recycled pulp of a waste cardboard case, and can be used in one of a group consisting of large area fields, home gardening, golf fields, paddy fields and dry farmlands of general or organic farming.

20. (Original) The method according to claim 1, wherein said multi-purpose paper can be used in one of domestically cultivating box containing organic soil or organic medium and industrial applications selected from a group consisting of indoor and outdoor net supports, papery recyclable cultivating plate, and artificial indoor planting system with devices of temperature control, cold and hot water pipes, and light control.

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21. (Original) The method according to claim 1, wherein said uneven surface structure is used for sowing at least a seed thereon, and said method further includes a fixing layer for fixing said seed, wherein said fixing layer comprises manufacturing steps of:

- (a) providing a papermaking material and obtaining a clean paper pulp by treating said papermaking material; and
- (b) adding at least one functional additive into said clean paper pulp to form said multi-purpose paper.

22. (Original) The method according to claim 21, wherein said fixing layer is a thin layer die-cast with at least a lattice for positioning and wrapping therein said at least a seed.

23. (Original) The method according to claim 1, wherein said multi-purpose paper has light-blocking weed-preventive ability and natural porous carriers suitable for proliferating microorganisms thereon so that one of antagonistic microorganism for controlling a specific disease of a plant, natural pest control component and bacterial control agent can be coated, sprayed or immersed thereon and said multi-purpose paper can be used for covering one of land and cultivating medium for one of sowed plant and transplanted plant.

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24. (Original) The method according to claim 23, wherein said antagonistic microorganism is one of radioactive antagonistic bacterium for resisting root nodule nematode and antagonistic bacterium of radish seedling wilt disease.

25. (Original) The method according to claim 23, wherein said natural pest control component is selected from a group consisting of sodium dodecyl sulfate (SDS), linear alkyl sulfate (LAS), agricultural waste containing saponin and methyl alcohol extracted from one of Camellia seed cake and tobacco powder.

26. (Original) The method according to claim 23, wherein said one of said antagonistic microorganism, said pest control component and said bacterium control agent can be coated on the surface of said paper by an adhesive material, wherein said adhesive material is a natural neutral material of one of natural amylose gel and carboxymethyl cellulose (CMC).

27. (Original) The method according to claim 23, wherein said method further comprises a step of coating fertilizer powder or capsule on said paper by one of spraying and coating technologies, to form a slowly releasing organic or chemical fertilizer coating, thereby providing required nutrition for said plant.

28. (Original) The method according to claim 27, wherein said method adjusts a formula of said coating according to requirements and features of a specific crop, and sprays or coats on a specific position of said paper.

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29. (Original) The method according to claim 27, wherein said method further comprises a step of punching plural holes on said paper to partly pierce at least one of said fertilizer coating and said uneven surface structure, and inlaying said seed in punched holes to allow said seed to root downwardly upon germination and to guide roots of said plant to grow in a room formed under said uneven surface structure.

30. (Original) The method according to claim 29, wherein said method further comprises one of a step of attaching a fixing layer on said paper by an adhesive material for securing said seed on said paper, and a step of using said paper oppositely according to a specific requirement of crops, wherein said adhesive material is one selected from a group consisting of glue spray, starch and carboxymethyl cellulose (CMC).

31. (Original) The method according to claim 29, wherein said seed is further treated according to features of said seed by using a chemical seed-treating agent cooperating with one selected from a group consisting of alginic soda acid, gelatine and polyvinyl alcohol for protecting the germination of said seed, wherein said chemical seed-treating agent is selected from a group consisting of ethylene glycol, propylene glycol, butylenes glycol, polyethylene glycol, polypropylene glycol, polybutylene glycol, glycerine and 2-octyl glycol.

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32. (Currently Amended) The method according to claim 29, wherein said seed is selected from a group consisting of seeds covered with a paper pulp, seeds covered with a polymer compound, seeds of grains, seeds of medicinal herbs, seeds of ~~economical plant~~, seeds of greensward, seeds of vegetables, seeds of fruits, seeds of flowers and artificial seeds cultivated from a cell culture.

33. (Original) The method according to claim 29, wherein said method further comprises steps of overall embossing, punching holes, and making said uneven surface structure according to requirements of a specific crop, to increase water-absorbing ability, air permeability, size stability and limpness of dry and wet alternation.

34-40. (Cancelled).

41. (New) The method according to claim 1, wherein said multi-purpose paper includes a corrugated paper layer having a basic weight larger than 150 g/m² and a surface paper layer having a basic weight larger than 300 g/m² in order to have relatively high wet strength, water-preventing ability and water-permeating ability.